



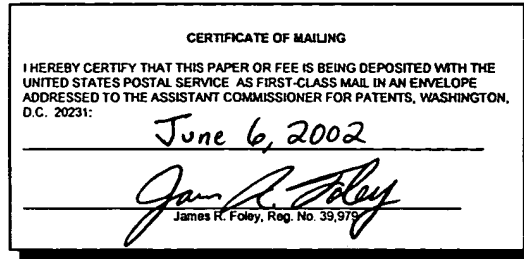
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#6

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.: 10/069,838)
)
Filed: February 26, 2002)
)
Art Unit: Not Yet Assigned)
)
Examiner: Not Yet Assigned)
)
For: **RIVETING DEVICE**)
 AND METHOD FOR)
 RIVETING)
)
Applicant: Owen Eastwood)
)
Atty Docket No.: (913/40130))
 Case 300-PCT)



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COMMUNICATION

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

On May 20, 2002, Applicant filed a *Response to Notification of Missing Requirements* which was mailed May 1, 2002. The return postcard was recently received. Applicant noticed that there is an incorrect serial number and filing date noted thereon. Specifically, the postcard indicates that the serial number for the above-referenced application is 10/130,689 filed on May 20, 2002. The correct serial number is 10/069,838 filed on February 26, 2002. The *Notification of Missing Requirements* mailed May 1, 2002, copy enclosed, contains the correct serial number. Also enclosed is a copy of the returned postcard that was filed with the application, indicating the correct serial number and filing date thereon. This Communication is filed to point this discrepancy out to the Examiner and to clarify the record.

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29. The riveting unit as claimed in claim 27, characterized in that the holding-down piston (12) and the die piston (13) are each biased in their starting position by means of a spring (19, 28), the spring (19) of the die piston (13) being set to a stronger setting than the spring (28) of the holding-down piston (12).

30. The riveting unit as claimed in claim 29, characterized in that the springs (19, 28) are disposed concentrically in relation to one another.

31. The riveting unit as claimed in claim 27, characterized in that the die piston (13) forms a central cylinder (23) in which the holding-down piston (12) is disposed.

32. The riveting unit as claimed in claim 31, characterized in that the restoring spring (28) of the holding-down piston (12) is supported against a pressure-exerting disk (32), which is disposed in the inlet region of the cylinder (23) and leaves a through-passage (31).

33. The riveting unit as claimed in claim 27, characterized in that the holding-down means (3) and the riveting die (4) are formed, over part of their length, as sleeve bodies (33, 21) which are disposed concentrically in relation to one another and can be displaced axially in relation to one another.

34. The riveting unit as claimed in claim 33, characterized in that the cylinder (21) in which the holding-down piston (12) is guided has a hydraulic volume (58) which is shut off in the outward direction by means of valves (56, 57).

35. The riveting unit as claimed in claim 34, characterized in that the valves (56, 57) are used to set a holding-down force (H) which is uniform until the riveting operation is carried out.

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36. A riveting unit (1) with a holding-down means (3) and a riveting die (4), in which there is a feed of rivets (38) which are combined in a rivet chain (39), characterized by an advancement pawl (46) which runs over a rivet (38) during a rearward movement and moves the rivet (38) forward during an advancement movement, the rearward movement, furthermore, being derived from the movement of the riveting die (4).

37. The riveting unit as claimed in claim 36, characterized in that the riveting die (4) displaced back for a riveting operation is not moved fully out of the movement path of the tip (47) of the advancement pawl (46), said pawl advancing the rivet (38).

38. The riveting unit as claimed in claim 37, characterized in that the advancement movement of the advancement pawl (46) is stop-limited by striking against the riveting die (4).

39. The riveting unit as claimed in claim 36, characterized in that the advancement pawl (46) is spring-biased in the advancement direction.

40. The riveting unit as claimed in claim 36, characterized in that the advancement pawl (46) during advancement, interacts in each case with the rivet (38) which is next to be processed.

41. The riveting unit as claimed in claim 36, characterized in that the advancement pawl (46) is mounted on an advancement carriage (48), and in that the advancement carriage (48) can be moved substantially at right angles to the riveting die (4).

42. The riveting unit as claimed in claim 41, characterized in that the advancement carriage (48) has a control surface (50), acting against which is a disengagement element (51) for disengaging the advancement carriage (48).

43. The riveting unit as claimed in claim 42, characterized in that the control surface (50) runs along the angle bisector between the movement direction (r) of the riveting die (4) and the movement direction (t) of the advancement carriage (48).

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44. The riveting unit as claimed in claim 43, characterized in that the advancement carriage (48) has a handle (54) for the manual disengagement of the advancement carriage (48).

45. A riveting unit (1) with a holding-down means (3), a riveting die (4) and a rivet anvil (10), characterized in that the rivet anvil (10) has two joining wings (62) which can be moved in opposite directions to one another and engage over the rivet anvil (10), in the process leaving between them a spacing (a) corresponding to the diameter of the riveting die (4).

46. The riveting unit as claimed in claim 45, characterized in that the joining wings (62) are mounted on the rivet anvil (10) about pins (63) transverse to the movement direction (r) of the riveting die (4).

47. The riveting unit as claimed in claim 45, characterized in that, during the downward movement of the riveting die (4), the joining wings (62) are displaced by means of the material of the elements (55) which are to be connected being displaced laterally by the riveting die (4), the spacing (a) between said joining wings being increased in the process.

48. The riveting unit as claimed in claim 45, characterized in that, during the displacement, the joining wings (62) dig into the material of the elements (55) which are to be connected in part counter to the movement of the riveting die (4).

49. A method of riveting two sheet-like elements (55) by means of a riveting device, in particular by means of a riveting unit (1) which has a holding-down means (3) and a riveting die (4), first of all the holding-down means (3) being moved into abutment against the elements (55) and then the riveting die (4) pressing a rivet into the elements (55), connecting the latter in

the process, or joining the elements directly to one another, characterized in that the holding-down force (H) is increased in dependence on the die force (N), but to a lesser extent.

50. The method as claimed in claim 49, characterized in that the holding-down force (H) is increased starting from a level which first of all exceeds the riveting-die force (N).

B1 51. A method of joining two sheet-like elements (55) by means of a riveting device, in particular by means of a riveting unit (1) having a holding-down means (3), a riveting die (4) and a rivet anvil (10), wherein the rivet anvil (10) has two joining wings (62) which can be moved in opposite directions to one another and engage over the rivet anvil (10), in the process leaving between them a spacing (a) corresponding to the diameter of the riveting die (4), the elements (55) being joined, without using a rivet, merely by deformation by means of the riveting die (4), and a rivet anvil (10) which acts as an abutment, furthermore, being provided, characterized in that the rivet anvil (10) is moved in the opposite direction at least in part as the riveting die (4) is pressed down.

52. The method as claimed in claim 51, characterized in that the elements (55), in the joining region, are pressed into a radially openable rivet-anvil opening (64).--

Should the Examiner have any questions regarding this Amendment, the Examiner is invited to contact one of the undersigned attorneys at (312) 704-1890.

Respectfully submitted,

Dated: March 29, 2002

By: 

Richard A. Giangiorgi, Reg. No. 24,284
James R. Foley, Reg. No. 39,979
Trexler, Bushnell, Giangiorgi,
Blackstone & Marr, Ltd.
105 W. Adams Street, 36th Floor
Chicago, Illinois 60603
(312) 704-1890

Respectfully submitted,

Date: June 6, 2002

By: James R. Foley
Richard A. Giangiori, Reg. No. 24,284
James R. Foley, Reg. No. 39,979
Trexler, Bushnell, Giangiori,
Blackstone & Marr, Ltd.
105 West Adams Street, 36th Floor
Chicago, Illinois 60603-6299
Tel: (312) 704-1890

ATTORNEYS FOR APPLICANT

349890

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